AK STEEL DEARBORN WORKS

C Blast Furnace Casthouse Baghouse and Bleeders

Startup, Shutdown & Malfunction Plan

Iron & Steel MACT Rule

40 CFR 63 Part FFFFF

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AK Steel Dearborn Works C Blast Furnace Casthouse Baghouse Start-up, Shutdown, and Malfunction Plan: Roadmap

A. PURPOSE: This plan provides a roadmap to the written start-up, shutdown and malfunction procedures for the C Blast Furnace Casthouse Baghouse. This roadmap is intended to satisfy the requirements of the Integrated Iron and Steel Maximum Achievable Control Technology (MACT) rule to have a written plan pursuant to R 336.1911, 40 CFR 63.7810(c), 40 CFR 63.7835(b), and 40 CFR 63.6(e)(3). In addition, this plan includes specific operating procedures to minimize bleeder emissions as required by Permit to Install 182-05C, EUCFURNACE III.2. It should be noted that sections of this SSM that pertain to minimizing bleeder emissions are not subject to the requirements of the Integrated Iron and Steel MACT Rule. The roadmap directs interested parties to the appropriate written document from the facility operational control documentation management system. These procedures describe operating and maintaining the source during periods of start-up, shutdown and malfunction and a program of corrective action for malfunctioning process and air pollution control equipment. The malfunction procedures intend to provide direction to operators to ensure we are prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions. This plan, if implemented correctly, will also reduce the reporting burden associated with these periods.

B. DETAILED PROCEDURE: The procedure described below applies only to sources covered by the Integrated Iron and Steel MACT. They do not apply to procedures that specifically apply to minimizing bleeder emissions. During periods of start-up, shutdown, and malfunction, Dearborn Works will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in this plan. When actions taken by Dearborn Works are consistent with the procedures specified in each procedure, Dearborn Works shall keep records for that event demonstrating that the procedures specified in the plan were followed. In addition, records shall be kept of the occurrence and duration of each start-up, shutdown and malfunction of operation and each malfunction of the air pollution control equipment. Semi-annual reports are to be submitted confirming that actions taken during the relevant period of start-up, shutdown, and malfunction were consistent with the procedures in this plan.

If the actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) are not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall report the actions taken for that event within 2 working days after commencing actions inconsistent with the plan followed by a letter within 7 working days after the end of the event.

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C. REFERENCES: A reference to the Start-up, Shutdown, and Malfunction procedures are outlined below.

Procedure	Reference
1. C Blast Furnace Startup Procedure	PO-PR-A2-60-0119E
2. C Blast Furnace Shutdown Procedure	PO-PR-A2-60-0115E
3. C Blast Furnace Casthouse Baghouse Startup Procedure	PO-PR-A2-65-0135E
4. C Blast Furnace Casthouse Baghouse Shutdown Procedure	PO-PR-A2-65-0136E
5. C Blast Furnace Casthouse Baghouse ID Fans Startup Procedure	PO-PR-A2-65-0137E
6. C Blast Furnace Casthouse Baghouse ID Fans Shutdown Procedure	PO-PR-A2-65-0138E
7. C Blast Furnace Casthouse Baghouse Malfunction Procedure	PO-PR-A2-65-0139E
8. C-Blast Furnace Bleeder Emissions Control	PO-PR-A2-65-0140E
9. C Blast Furnace Casthouse Baghouse System Malfunction Procedure Reporting Form	*Iron Making – Environmental Deviation – Working Report – PO-FM-A2-65-0132E-01*
10. C Blast Furnace Casthouse Baghouse Environmental Monitoring Equipment Startup and Shutdown Procedure	PO-PR-A2-02-0125E

1. Proposed definitions are outlined below:

Source Startup: The start-up of the C Blast Furnace is defined as when the hot blast wind is started. The furnace resumes operation after an extended downtime or outage for maintenance and other events, whether planned or unplanned. During furnace start-up, prior to casting, the baghouse ID fans are turned on, and the baghouse will be in operation. Dearborn Works Procedure (PO-PR-A2-60-0119E) is designed to minimize bleeder emissions during the blast furnace start-up.

Monitoring Equipment Startup: The startup of the C Blast Furnace monitoring equipment is defined as when the monitoring equipment is turned on from a power off condition. The monitoring equipment consists of all compartment broken bag detectors, the baghouse inlet pressure transmitter, damper beck drives that are referenced in the C-Blast Furnace Continuous Parametric Monitoring System plan *and overall and compartment differential pressure transmitters.*

Source Shutdown: The shutdown of C Blast Furnace is defined as when the wind is completely turned off for whatever reason (planned or unplanned outage, etc). During the shutdown process, the source of emissions (casthouse emissions) covered by the Iron and Steel MACT will cease. The baghouse will be in operation until the end of the last cast before shutdown. Often during a planned shutdown, the hearth will be drained of its iron to a greater extent than during a

typical cast. This process is referred to as blowing the taphole and may contribute to higher than normal emissions. Dearborn Works procedure (PO-PR-A2-60-115E) is designed to minimize bleeder emissions during the blast furnace shutdown.

Monitoring Equipment Shutdown: The shutdown of the C Blast Furnace monitoring equipment is defined as when the monitoring equipment is turned off from a power on condition. The monitoring equipment consists of all compartment broken bag detectors, the baghouse inlet pressure transmitter, all damper beck drives that are referenced in the C-Blast Furnace Continuous Parametric Monitoring System plan, and compartment and *overall differential pressure transmitters.*

Control Device or CPMS Malfunction: Malfunction of the baghouse occurs when the equipment is not operating as designed or as established during the performance test when the source is in operation. For example, the air pollution control equipment is malfunctioning when:

- Loss of electrical power
- Baghouse fan breakdown (bearing, shaft, motor, belt, sheave, rotating element, dampers, vibration, current, winding temperature, etc.)
- Baghouse internal components malfunction or failure (e.g., inoperable pulse jet components, inlet/outlet damper actuators failure, inoperable screw conveyors)
- High differential baghouse pressure
- High baghouse temperature
- Bag leak detection system failure
- Sudden opacity (broken bags)
- Loss or malfunction of recording display devices (pressure gauges)
- Loss of structural integrity (e.g., ductwork, hoods, stack)
- Beck driver actuator broken linkage
- Loss of inlet pressure transmitter signal

2. **Responsible Official (RO):** The person who is designated to have the overall responsibility for managing compliance to the Integrated Iron and Steel MACT rules and implementing the SSM procedures. This person is the signature authority for the records and reports as required in these plans. The RO is the General Manager – Dearborn Works.

3. **Roles and Responsibilities:** The RO has delegated the responsibilities associated with the RO for the C Blast Furnace to the following position: Department Manager – Ironmaking.

4. **Training:** Personnel responsible for the air pollution control equipment must have adequate knowledge to start-up, shut down, and respond to malfunctions in accordance with procedures established in these SSM Plan procedures. Each person must be trained on the tasks and responsibilities they are required to perform and a record of the training maintained in accordance with departmental procedures.

5. **Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by the Integrated Iron and Steel MACT rules shall be maintained in a form suitable and readily available for expeditious

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inspection and review. The files shall be retained for at least 5 years following the date of each SSM occurrence, measurement, maintenance, corrective action, report, or record.

6. **Reporting:** The Integrated Iron and Steel MACT rules also includes "immediate reporting" if the actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). The report must be submitted within 2 working days after commencing actions inconsistent with the plan followed by a letter within 7 working days after the end of the event. If actions taken to during a startup, shutdown, or malfunction, including actions to correct a malfunction are consistent with the procedures in the startup, shutdown or malfunction plan (SSMP), reporting is required on a semi-annual basis per 40 CFR 63.10(d)(5)(i). The reporting requirements listed here to not apply to C-Furnace bleeders since the bleeders are not subject to the Integrated Iron and Steel MACT.

Reports to be submitted to the MDEQ are outlined below. The reports described below apply only to sources covered by the Integrated Iron and Steel MACT. They do not apply to procedures that specifically pertain to minimizing bleeder emissions.

Agency Reporting Requirements	Responsible Department	Overview of content
1. Source Operation and CPMS Semi-Annual Report: Submit a report to the MDEQ when actions taken during a malfunction are consistent with the procedures specified in the SSM Plan for that event.	Environmental Affairs	Report contains the date of each start-up or shutdown (when an emission limit was exceeded) and any malfunction of the source or control equipment indicating the SSM Plan was implemented properly. This report will be submitted to the MDEQ by the 30th day following the end of each calendar half with the name of owner; title of owner; signature of responsible official; identification of the startup, shutdown or malfunction event(s); and a statement that the provisions of the plan were implemented during the startup, shutdown or malfunction.

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Agency Reporting Requirements	Responsible Department	Overview of content
2a. 2-day report: If actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). Actions taken shall be reported within 2 working days, after commencing action inconsistent with the plan, by fax or telephone.	Environmental Affairs	Describe whenever startup, shutdown or malfunction event deviates from the plan in accordance with 40 CFR 63.10(d)(5)(ii). Report to Agency circumstances about the actions and when normal operation will resume.
2b. 7-day report: If actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). Actions taken shall be reported within 2 working days, followed by a letter within 7 working days after the end of the event. A "Responsible company official" signs report.	Environmental Affairs	This is a follow-up letter to the 2-day report. A letter shall be submitted to the MDEQ within 7 working days after the end of the event with the name of owner; title of owner; signature of responsible official; an explanation of the startup, shutdown or malfunction; an explanation of the reasons for not following the applicable provisions of the plan; an explanation of whether excess emissions may have occurred; and an explanation of whether parameter monitoring exceedances may have occurred.

7. **Corrective Action:** Procedures to be initiated are the applicable actions that are specified in the SSM Plan. Records and reporting of corrective action must be performed according to section 5 and 6 above.

A. REFERENCES:

40 CFR Subpart FFFFF

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LIST OF CONTROLLED PROCEDURES

The facility will operate and maintain the source and associated air pollution control equipment (including CPMS) in accordance with the Startup, Shutdown, and Malfunction Plan and the controlled procedures listed below:

	Procedure	Reference
1.	C Blast Furnace Startup Procedure	PO-PR-A2-60-0119E
2.	C Blast Furnace Shutdown Procedure	PO-PR-A2-60-0115E
3.	C Blast Furnace Casthouse Baghouse Startup Procedure	PO-PR-A2-65-0135E
4.	C Blast Furnace Casthouse Baghouse Shutdown Procedure	PO-PR-A2-65-0136E
5.	C Blast Furnace Casthouse Baghouse ID Fans Startup Procedure	PO-PR-A2-65-0137E
6.	C Blast Furnace Casthouse Baghouse ID Fans Shutdown Procedure	PO-PR-A2-65-0138E
7.	C Blast Furnace Casthouse Baghouse Malfunction Reporting Procedure	PO-PR-A2-65-0139E
8.	C-Blast Furnace Bleeder Emissions Control	PO-PR-A2-65-0140E
9.	C Blast Furnace Casthouse Baghouse System Malfunction Procedure Reporting Form	*Iron Making – Environmental Deviation – Working Report – PO-FM-A2-65-0132E-01*
10.	C Blast Furnace Casthouse Baghouse Environmental Monitoring Equipment Startup and Shutdown Procedure	PO-PR-A2-02-0125E

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REVISION TABLE

Date	Revision Comments
5/18/2006	Original Issue – SSM incorporated into O&M Plan
10/15/07	Revised to include newly installed baghouse – SSM incorporated into O&M Plan
4/15/11	Revised to change facility name – SSM incorporated into O&M Plan
11/21/13	Revised to include more detailed SNC Lavelin O&M plan, add details regarding CPMS and update CPMS Operating Parameters – SSM incorporated into O&M Plan
5/12/14	Revised to include Bleeder SSM Plan – SSM incorporated into O&M Plan.
8/17/15	Separated SSM plan from other plans, revised format to conform to AK Standards, modified procedure numbers
9/16/16	Added overall and compartment differential pressure transmitters to monitoring equipment startup and shutdown descriptions, added form number for malfunction reporting form

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